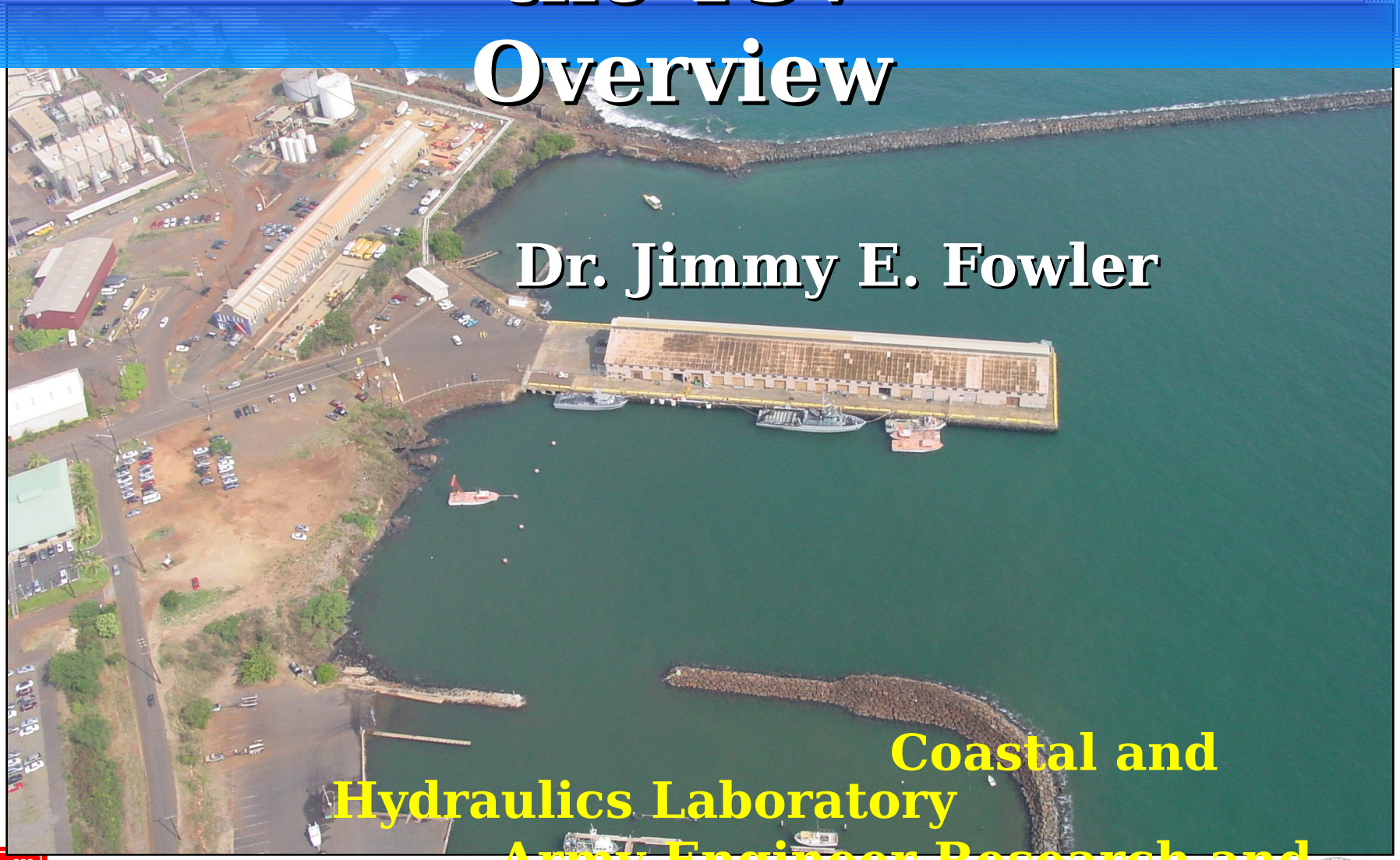
Rapid Port Enhancement for the TSV Overview



Dr. Jimmy E. Fowler

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Rapid Port Enhancement for the TSV

- **New Army Science and Technology Objective (STO # IV.EN.2003.04)**
- **Presently only funded at 6.2 level**
- **4 year effort started in FY 03**

Sponsor Agencies:
DPMO, MSBL

RPE Team

- Coastal & Hydraulics Laboratory – ERDC
- Geotechnical & Structures Laboratory – ERDC
- Quantum Engineering Design, Inc
- Alion Inc.

Additional Members

Director, Internal Pressures (DIP)

DIPs, Static Hydrobeam Tube Systems (DIP SHTS)

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RPE R&D Program

RPE R&D Components

Presently Funded Efforts:

- Lightweight Modular Causeway Development
- Small Sea Port Characterization Methodology
- Throughput Model Development

Proposed Unfunded Efforts:

- Near Shore Breakwater
- Expedient Dredging
- Rapid Pier Repair/Upgrade
- Waterside Security

RPE R&D Major Milestones

Rapid Port Enhancement for the Theater Support Vessel

FY04: Small Scale Lab Demonstration

FY 04 Integration of Egress/Ingress Port Algorithms

FY05: Fabrication of Scaled Causeway Model for Field Demo

Integration of Algorithms into Small Port Throughput Model

FY06: Scaled Field Demonstration of Causeway System and Modeling Capabilities/Small Port Tool-kit

FY06: Lightweight Causeway System ready for full scale (6.3) program/demonstration

Throughput Model Development

POCs: Green, Debra and Greg

Key Milestones:

’03 Cluster Analysis of Small Ports

’04 Computational framework for land/sea-based throughput analysis

’05 Link sea/land modules for Small Port Throughput Model

’06 Validate Small Port Throughput Model

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Small Port Characterization Methodology

POC: Dr. Resio

Key Milestones:

’04 Small Port Characterization/Classification System (SMPCCS)

’05 Inferential System for Applying SMPCCS when data is lacking

’06 S /Assessment Module

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Lightweight Modular Causeway Section Development

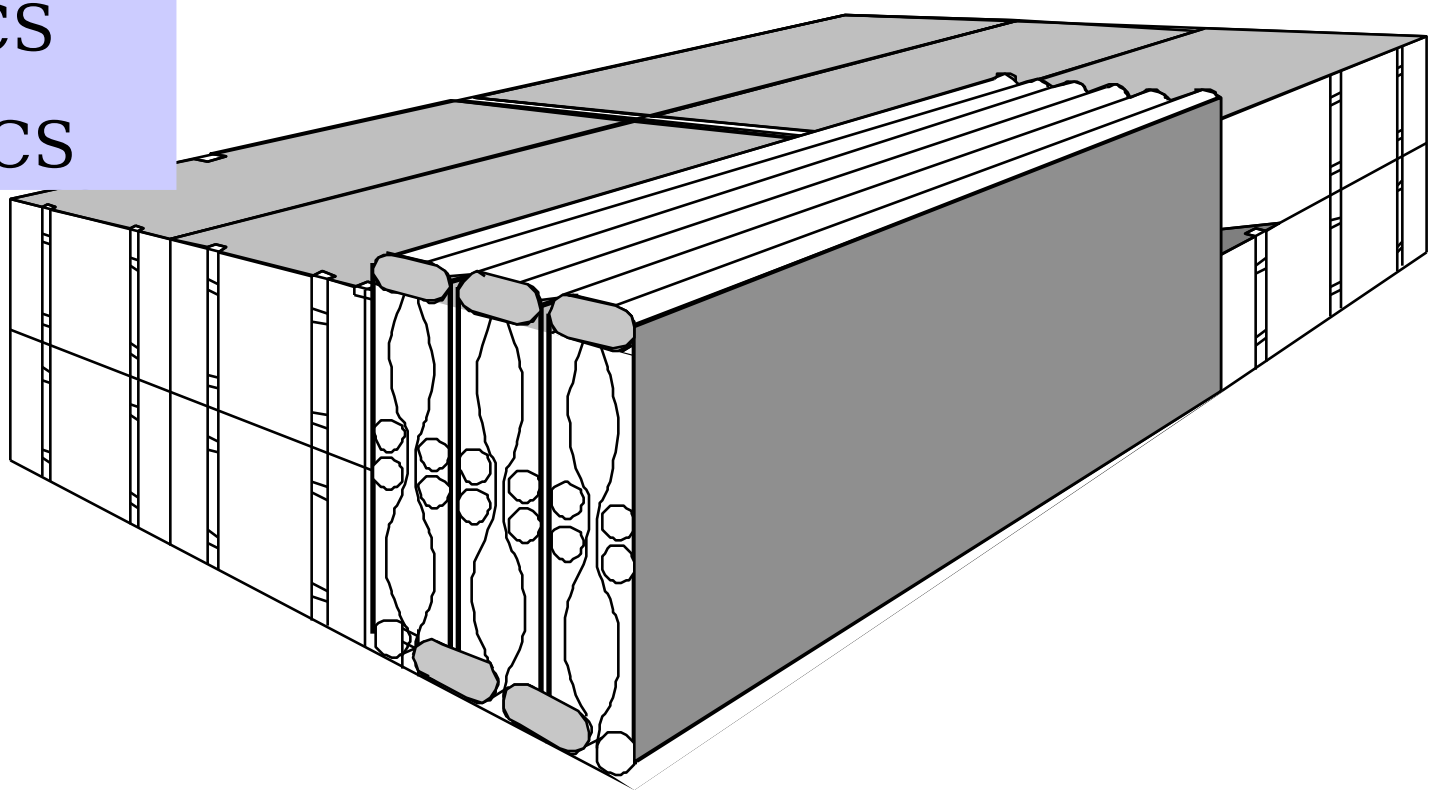
POCs: Resio, Donald
Fowler, Jimmy
Pratt, James
Ray, James
Bevins, Tommy
Plackett, Mike

- **Many more small/medium ports available to TSV/HSV/HSC**
- **Many will not be immediately offload compatible and will require upgrade or access improvements**
- **Existing/planned causeway systems not transportable by TSV**

LMCS Comparison

80 ft MCS

60 ft LMCS



LMCS = 23% of the MCS storage volume
= 33% of the MCS Weight
=100% of the MCS payload capacity

Lightweight Modular Causeway Development

POC: Resio/Fowler/Ray

Planned Accomplishments with existing funds:

FY04: Small Scale Lab/Field Demonstration

FY05: Fabrication of Small Scale Causeway Model for Field Study

FY06: Small-Scale Field Demonstration of Causeway System and Modeling Capabilities

FY06: LMCS ready for transition to 6.3 Full Scale Development

FY09: Transition to SDD

FY10: Initial procurement of Lightweight Modular Causeway System

Other scenarios could accelerate procurement schedule

Concept Still Needs Work!

- Puncture/Wear Resistance
- Roll Stability
- Deployment/Recovery
- Ramps and Ramp Loads
- Mooring
- Trafficability/Wear Surface
- TSV-Interface Issues
- Life-Cycle Costs
- Force Structure Issues

Photo: Duck, NC by D. Green

IPPD Team is being formed.

DEMO